

USSR

UDC 542.91:547.1'118

ABDUVAKHABOV, A. A., ZUPAROVA, K. M., GODOVIKOV, N. N., KABACHNIK, M. I., ASLANOV, Kh. A., and SADYKOV, A. S., Institute of Organoelemental Compounds, Academy of Sciences USSR, and Tashkent State University imeni V. I. Lenin, Tashkent

"The Synthesis of Some O-Ethyl-S-alkyl Alkylthiophosphonates"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 73, pp 1659-1661

Abstract: It was established in earlier work by the authors that the anticholinesterase activity of O-alkyl-S-alkyl methylthiophosphonates increases with an increasing length and degree of branching of the alkyls at O and S. However, the effect of the alkyl at P on the physiological activity of compounds of this type had not been studied. To carry out this study, the O-ethyl-S-butyl alkylthiophosphonates EtO(R)P(O)SBu (I; R = Et, n-Pr, n-Bu), O-ethyl-S-(beta-ethyl-mercaptopethyl) alkylthiophosphonates $\text{EtO(R)P(O)SC}_2\text{H}_4\text{SEt}$ (II; R = Et, n-Pr, n-Bu), and methylsulfomethylates of II (III) were synthesized. O,O-Diethyl alkylphosphonates $(\text{EtO})_2\text{P(O)R}$, which were prepared starting with diethyl phosphite as 1/2

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ABDUVAKHABOV, A. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 73, pp 1659-1661

described in earlier work, formed the acid chlorides EtO(R)P(O)Cl (IV on being reacted with PCl_5 . IV, on being reacted with butylmercaptan and beta-mercaptodiethyl sulfide, yielded I and II, respectively. Compounds III were obtained by reacting II with dimethyl sulfate. The physical properties of the compounds synthesized are listed in tables.

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UDC 547.972/73

RAKHIMKHANOV, Z. B., SADYKOV, A. S., ISMAILOV, A. I., and KARIMDZHANOV, A. K.,
Scientific Research Institute of Chemistry and Technology of Cotton Cellulose,
Tashkent

"Anthocyanins of Hibiscus Cannabinus"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1971, pp 723-727

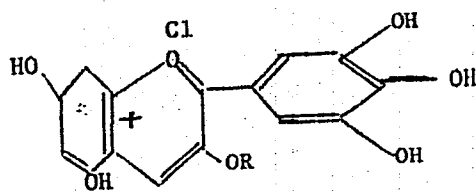
Abstract: A study was made of the anthocyanins of Hibiscus cannabinus var. simplex (kenaf). Two anthocyan glycosides were isolated from the flowers of this plant. One of them was the new glycoside called cannabinin and the other, myrtilin, which was isolated from kenaf flowers for the first time. The ratio of cannabinin to myrtilin in the kenaf anthocyanins was about 4:1. Experimental procedures, yields and some physical and chemical characteristics of the products are presented for isolation of the anthocyanins, obtaining cannabinin, acid hydrolysis of cannabinin, fermentative hydrolysis of cannabinin, oxidation of cannabinin with hydrogen peroxide, acid hydrolysis of bioside, isolation of myrtilin, acid hydrolysis of myrtilin, fermentative hydrolysis of myrtilin, oxidation of myrtilin with hydrogen peroxide and basic splitting of delphinidin. The new substance has $\lambda_{\max} = 531$ nm. It is characterized as delphinidin-3- β -D-glucoside- β -D-xyloside (cannabinin):

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RAKHIMKHANOV, Z. B., et al., Khimiya Prirodnkh Soyedineniy, No 6, 1971,
pp 723-727



R = glucosyl-xyloside

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UDC 591.105:577.15:598.126

YUKEL'SON, L. Ya., AKHUNOV, A., SADYKOV, E., and SOROKIN, V. M.

"Some Properties of the ATP-Pyrophosphatase and 5'-Nucleotidase of the Venoms of *Vipera lebetina turanica* and *Naja oxiana* E."

Tashkent, Uzbekskiy Biologicheskii Zhurnal, No 6, 1970, pp 8-11

Abstract: Venoms of Central Asian snakes contain various enzymes, including the highly active ATP-pyrophosphatase and 5'-nucleotidase. The object of this study was to determine the effects of the pH, temperature, and duration of incubation on the activity of these two enzymes in the venoms of *Vipera lebetina turanica* and *Naja oxiana* E. Desiccated venom samples were obtained from the Herpetology Laboratory of the Uzbek SSR Academy of Sciences. The activity of the enzymes was determined according to the amount of dissociated inorganic phosphates. The incubation samples contained 0.1 ml of a 0.1% venom solution, 0.1 ml of a 1.2% ATP solution or of a 1.5% A.F. solution, and 0.8 ml of a buffer solution. Results indicate that the ATP-pyrophosphatases of both venoms have an optimum pH of 8.4-9.0 and an optimum temperature of 37-38°C. The corresponding values for the 5'-nucleotidases are pH 8.4-8.5 and 37-39°C. The best incubation period is 1 hour. Both ATP-pyrophosphatases are thermolabile. The 5'-nucleotidases are more resistant to high temperatures.

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1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--QUANTITATIVE DETERMINATION OF ISOPROPYL ALCOHOL AND WATER IN A
PETROLEUM PRODUCT BY MEASURING THE DIELECTRIC CONSTANT AND ELECTRICAL
AUTHOR--(03)-SADYKHOV, I.D., MAKSIMOV, S.I., ZEYNALOV, A.YA.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 43

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELECTRICAL CONDUCTIVITY, PROPANOL, ISOMER, DIELECTRIC
CONSTANT, UREA, PETROLEUM DEWAXING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1512

STEP NO--UR/0318/70/000/002/0043/0043

CIRC ACCESSION NO--AP0118499

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118499

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RAPID DETN., SUITABLE FOR LAB.
AND CONTINUOUS ATOMATIC ANALYZERS, USED A TRICOMPONENT DIAGRAM BASED ON
THE DIFFERENT DIELEC. CONST. AND COND. OF EACH OF THE STREAM COMPONENTS,
AND WAS APPLIED TO UREA DEWAXING OF PETROLEUM PRODUCTS.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

1/2 025
TITLE--OIL ADDITIVES -U-

AUTHOR--(05)-KULIYEV, A.M., ZEYNALOVA, K.A., SADYKHOV, K.I., SULEYMANOVA,
F.G., DRUDZHEVA, I.M.
COUNTRY OF INFO--USSR

SOURCE--BAKINSKIY RABOCHIY, SEPTEMBER 18, 1970, P 3, COL 3

DATE PUBLISHED--18SEP70

SUBJECT AREAS--MATERIALS, BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--LUBRICATING OIL, LUBRICANT ADDITIVE, CHEMICAL SYNTHESIS,
PETROLEUM REFINING, HONORARY TITLE AWARD, CHEMICAL PERSONNEL/(U)BFK
LUBRICATING OIL ADDITIVE, (U)S83 LUBRICATING OIL ADDITIVE, (U)SK3
LUBRICATING OIL ADDITIVE, (U)AZNII8U LUBRICATING OIL ADDITIVE,
(U)INKHP21 LUBRICATING OIL ADDITIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605011/809 STEP NO--UR/9000/70/000/000/0003/0003

CIRC ACCESSION NO--AN0140180

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AN0140180

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. "THE DEVELOPMENT OF THE SYNTHESIS TECHNOLOGY FOR THE EFFICIENT ADDITIVES TO MOTOR OILS REFINED FROM THE BAKU PETROLEUMS, BFK, SB 3, SK 3, AZNII 8U, AND INKHP 21, AND REDUCING IT TO INDUSTRIAL APPLICATIONS", THE WORK DONE BY A. M. KULIYEV, K. A. ZEYNALOVA, K. I. SADYKHOV, F. G. SULEYMANOVA, I. M. DRUDZHEVA, I. I. NAMAZOV, AND V. YE. BASHAYEV HAS BEEN NOMINATED BY THE INSTITUTE OF CHEMISTRY OF ADDITIVES OF THE AZERBAIDZHAN ACADEMY OF SCIENCES FOR THE STATE PRIZE OF THE AZERBAIDZHAN S.S.R.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--PREPARATION OF SYNTHETIC OILS. NAPHTHENIC ACID ESTERS -U-

AUTHOR--(03)-KULIEV, R.SH., SADYKHOVA, B.A., ABDULLAYEVA, Z.A.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. MOSCOW, 1970, (2), 42

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--LUBRICATING OIL, FREEZING, FLUID VISCOSITY, FUEL FLASH POINT,
ETHYLENE GLYCOL, ESTER, NAPHTHENIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0645

STEP NO--UR/0318/70/000/002/0042/0042

CIRC ACCESSION NO--AP0119557

UNCLASSIFIED

2/2 022
CIRC ACCESSION NO--AP0119557
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT. NAPHTHENIC ACIDS, ESTERIFIED WITH
MONO AND DIHYDRIC ALCS., YIELDED ESTERS WITH FLASH POINT 156-94DEGREES
AND VISCOSITY INDEX 110-20. GLYCOL ESTERS WITH MOL. WT. 400-500 HAD
VISCOSITY AT 100DEGREES 7.8-8.1 CST. VISCOSITY INDEX 76-90, AND FREEZING
TEMP. MINUS 32 TO MINUS 38DEGREES. TRIETHYLENE GLYCOL ESTERS HAD THE
HIGHER LUBRICATING INDEXES. FACILITY: INKHP, BAKU, USSR.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11DEC70

1/2 016

TITLE--USE OF ULTRASONIC WAVES TO STUDY THE COMPLEXING OF NUCLEIC ACIDS
WITH POLYARICNS -U-

AUTHOR--(03)-ELPINER, I.YE., BRAGINSKAYA, F.I., SADYKHUVA, S.KH.

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 1970, 15(2), 274-7 (RUSS)

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--YEAST, RNA, SODIUM COMPOUND, PHOSPHORUS COMPOUND, CHEMICAL
REACTION, ULTRASONIC IRRADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3007/0284

STEP NO--UR/0217/70/015/002/0274/0277

CIRC ACCESSION NO--AP0135780

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--11DEC70
 CIRC ACCESSION NO--AP0135780
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INTERACTIONS BETWEEN YEAST RNA AND
 THE POLYPHOSPHATES (NAP0 SUB3) SUB75 AND (NAP0 SUB3) SUB3 WERE STUDIED
 BY MEASURING QUENCHING OF ULTRASONIC WAVES. QUENCHING WAS MEASURED ON
 AN IMPULSE DEVICE IN THE FREQUENCY RANGE 12-68 KHZ. METHACHROMASIA
 WITH TOLUIDINE BLUE WAS ALSO EMPLOYED. THE ABSORPTION MAX. OF TOLUIDINE
 BLUE IS DISPLACED TOWARD LOWER WAVELENGTHS (600 AND 540 M MU) IN THE
 PRESENCE OF RNA AND POLYPHOSPHATE, RESP. THE LINEAR (NAP0 SUB3) SUB75
 IS APPARENTLY BOUND BY NONHELICAL PORTIONS OF THE RNA MOL., WHICH THEN
 ACQUIRES DOUBLE STRANDED PROPERTIES. (NAP0 SUB3) SUB3, ON THE OTHER
 HAND, DOES NOT CHANGE ITS METACHROMATIC REACTION WITH THE DYE UPON ADDN.
 TO RNA. METACHROMATIC DATA ARE IN GOOD AGREEMENT WITH RESULTS OF
 STUDIES ON ACOUSTIC PARAMETERS OF POLYPHOSPHATES DURING INTERACTION WITH
 RNA. SONICATION OF RNA UNDER CERTAIN CONDITIONS (IN H₂O, 2 HR, FREQUENCY
 750 KHZ, INTENSITY 10-12 W-CM PRIME²) RESULTS IN RUPTURE OF RNA MOL.
 ALONG NONHELICAL REGIONS. AS A RESULT, THE SONICATED RNA LOSES SOME OF
 ITS ABILITY TO INTERACT WITH (NAP0 SUB3) SUB75. FACILITY: INST.
 CHEM. PHYS., MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--QUENCHING OF ULTRASONIC WAVES IN AQUEOUS SOLUTIONS OF NUCLEIC ACIDS

-U-

AUTHOR--(03)-ELPINER, I.E., SADYKHOVA, S.KH., BRAGINSKAYA, F.I.

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 1970, 15(1), 26-30

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NUCLEIC ACID, AQUEOUS SOLUTION, ULTRASOUND ABSORPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0710

STEP NO--UR/0217/70/015/001/0026/0030

CIRC ACCESSION NO--AP0119617

UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119617

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ABSORPTION OF ULTRASONIC ENERGY BY NATIVE AND DENATURED NUCLEIC ACIDS (I) WAS STUDIED BY MEANS OF A 12-68 MHZ GENERATOR. THE DENATURATION CAUSED BY THE ACTION OF HCHO OR NH SUB2 OH ON I, AND LIMITED TO CHANGES OF THE SECONDARY STRUCTURE OF I, RESULTED IN AN INCREASE OF THE ABSORPTION OF ULTRASONIC WAVES. RUPTURE OF THE POLYMER CHAINS IN I CAUSED BY THE ACTION OF HIGH INTENSITY ULTRASONIC WAVES, UREA, OR HYDROLYZING AGENTS RESULTED IN A DECREASE OF THE ABSORPTION OF ULTRASONIC ENERGY IN THE FREQUENCY RANGE EXAMD. FACILITY: INST. CHEM. PHYS., MOSCOW, USSR.

UNCLASSIFIED

Instruments and Equipment

USSR

UDC 615.478.7:628.8

ISHUYEV, S. Kh. and SADYKOV, R. S., Modfizpribor Special Technological Design Bureau of Medical and Physiological Equipment, Kazan'

"Microclimate Chamber MK-1"

Moscow, Meditsinskaya Tekhnika, Vol 5, No 2, Mar/Apr 71, pp:36-38

Abstract: The ability of an environment to add or withdraw heat is determined by the temperature, humidity, and rate of movement of the air and by the surface temperature of solid and liquid bodies. To study the effects of these factors on the heat balance in man, a chamber, called MK-1, was built in which these factors can be controlled. The walls, floor, and ceiling of the chamber are made of specially insulated panels. Conditioned air is pumped in and out by a motor located outside the chamber. Inside, numerous heat coils are distributed in various locations. The environmental parameters are selected on a control desk located outside the chamber and are maintained by appropriate

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USSR

ISHUYEV, S. Kh. and SADYKOV, R. S., Meditsinskaya Tekhnika, Vol 5, No 2, Mar/Apr 71, pp 36-38

automatic mechanisms. The experimental subject walks on an electrically driven treadmill above which fans generating a breeze are located. A second control desk, located inside the chamber, enables the operator to make additional adjustments and to communicate with the outside. The operational range of the chamber is: temperature -- 22-40 +2°C; relative humidity -- 20-90 +10%; and air breeze onto the experimental subject -- 0-10 +0.5 m/sec. The operational space is 8.5 cubic meters, the external size of the chamber is 6.5 x 4.6 x 3 meters, and its total weight is about 10 tons.

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USSR

UDC 678.742.3.01:53

MAMEDOV, R. I., SADYKH-ZADE, S. I., SULTANOV, R. A., ALIYEV, G. D.
ALI-ZADE, E. M., and FATALIYEV, A. G.

"Modification of Polypropylene With Organsphosphorus Compounds During the Reprocessing"

Moscow, Plasticheskiye Massy, No 6, 1973, pp 61-62

Abstract: Results of the investigation of thermal and optical ageing of a polypropylene sample modified by a diphosphite are described. It was established that addition of the diphosphite to the polypropylene retards the oxidation processes, this material exhibiting better indexes than polypropylene samples modified with synergistic mixtures of 0.3% of topanol KA + 0.5% of dilauryl thiodipropionate and the light stabilizer benzene OA. Addition of the diphosphite to the polypropylene increases considerably its elasticity preserving its starting strength and increasing its frost stability down to -30°C .

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Rubber and Elastomers

USSR

UDC 661.185.1

ASHIMOV, M. A., MURSALOVA, M. A., SADYKH-ZADE, S. I., and AKHMEDOV, G. G.,
Sumgait Branch INKhT, Acad. Sc., AzerbSSR

"Study of the Utilization of Biodegradable Alkylarylsulfonate INKhP-9 as an
Emulsifier During Production of Butadiene-nitrile Rubber"

Baku, Azerbaydzhanskiy Khimicheskiy Zhurnal, No 1 (73), 1971, pp 64-66

Abstract: The copolymerization of butadiene and acrylonitrile was studied as a function of the amount of a new biodegradable emulsifier INKhP-9 used and of the reaction time. INKhP-9 is the sodium salt of a mixture of 75-78% of mono-, 15-18% of the di- and 4-10% of the trialkylaranesulfonic acids obtained by alkylation of benzene with normal- α -olefines containing 6-14 carbon atoms in presence of $AlCl_3$ or H_2SO_4 . Increasing the amount of INKhP-9 from 2.2 parts by weight·hr to 3.8 and 4.2 results in 82, 77, and 65% copolymerization in 8 hrs respectively. However, the latex obtained with the lowest level of INKhP-9 is not stable. The higher concentrations of INKhP-9 give a sufficiently rapid process and a stable latex product which compares favorably with the commercially produced rubber SKM-26.

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1/2 020 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--ALKYLATION OF TOLUENE BY EPICHLOROHYDRIN IN THE PRESENCE OF
ALUMINUM CHLORIDE -U-
AUTHOR-(03)-SADYKHZADE, S.I., KURBANOV, S.B., MUSTAFAYEV, R.'. **S**
COUNTRY OF INFO--USSR
SOURCE--ZH. ORG. KHIM. 1970, 6(5), 989-91
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ALKYLATION, TOLUENE, EPICHLOROHYDRIN, ALUMINUM CHLORIDE,
ISOMER, IR SPECTRUM, DICARBOXYLIC ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/1341 STEP NO--UR/0366/70/006/005/0989/0991
CIRC ACCESSION NO--AP0135015

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0135015

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION GIVES
60-5:20-5:15-20 MIXT. OF O-MEC SUB6 H SUB4 CH SUB2 CH(OH)CH SUB2 OH (I),
M-I ISOMER, AND P-I ISOMER. THE DISTRIBUTION OF THE ISOMERS WAS
ESTABLISHED BY THE OXIDN. OF THE ISOMER MIXT. TO THE CORRESPONDING
DICARBOXYLIC ACIDS, WHICH WERE SEPD. AND IDENTIFIED. THE RESULTS WERE
CONFIRMED BY IR SPECTROSCOPY. FACILITY: SUMGAIT. FIZ. INST.
NEFTEKHIM. PROTSESSOV, SUMGAIT, USSR.

UNCLASSIFIED

USSR

GASANOV, G. T., SADYKHOV, B. O., and MEKHTIYEV, A. K., Azerbaijan Polytechnical Institute

"A Problem in the Nonstationary Motion of a Viscous Liquid"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSSR, Seriya Fiziko-tekhnicheskikh i Matematicheskikh Nauk, No 3, 1972, pp 93-98

Abstract: In connection with the problem of the motion of a viscous liquid through a tube with permeable walls, the authors theoretically consider a nonstationary, rectilinear, parallel motion of two viscous fluids between two coaxial cylindrical tubes, under the assumption that the tube of lesser radius is concentrically immersed, with a specified velocity, in the cylindrical tube of larger radius. They begin their solution by finding the change in pressure on the end face of the immersed cylinder, in the presence of the layer adjacent to the wall of the larger cylinder, for a known immersion velocity. The solution is then found by solving a system of two partial differential equations, both of which are given.

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USSR

UDC 628.58:549.74

ABDULLAYEV, G. B., GASANOV, G. G., MEKHTIYEV, M. A., DZHAFAROV, A. I.,
MAZANOV, D. M., BABAYEV, R. A., SADYKHOV, S. T., TEPLYAKOVA, G. V., and
RAGIMOV, R. N.

"Radioprotective Effect of Selenium"

Baku, Doklady Akademii Nauk Azerbaydzhanskoy SSR, No 3, 1973, pp 12-17

Abstract: Sodium selenite administered to Wistar rats 20 minutes after X-irradiation at 490 rad had little protective effect, the survival rate and average life-span being insignificantly higher than in the controls (50% survival rate by day 30). However, the same dose of the compound administered 30 minutes prior to irradiation (intraperitoneally, subcutaneously, or perorally) had a markedly protective effect; the survival rate was 90% and the average life-span 28 ± 3.6 days. When sodium selenite was combined with vitamins E (as an antioxidant) and A (to promote the retention of vitamin E in the body), the protective effect was even more pronounced, the survival rate and average life-span being significantly higher than in the controls (given selenium but not the vitamins).

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USSR

UDC 632.95

ZIYAYEV, A. A., OTROSHCHENKO, O. S., SADYKOV, A. S., TOLKACHEVA, G. A.,
AKBAROV, KH. A., and KHODZHAYEVA, T. A.

"A Method of Making β , β' -Di-[piperidyl-2- (or 1-methylpiperidyl-2)]
Disodium- γ , γ' -Dihydrodipyrindyl Carbamate"

USSR Author's Certificate No 343975, filed 13 Jul 70, published 14 Aug
72 (from RZh-Khimiya, No 10, May 73, Abstract No 10N614P by N. V. Lebedeva)

Translation: β , β' -Di-(piperidyl-2)-disodium- γ , γ' -dihydrodipyrindyl
carbamate (I) and β , β' -di-(1-methylpiperidyl-2)-disodium- γ , γ' -
dihydrodipyrindyl carbamate (II) are synthesized by reacting anabasine (III)
or N-methylanabasine (IV) respectively with dispersed metallic sodium in an
organic solvent in a molecular nitrogen atmosphere at 50-60°C. Example:
50 g of III or IV are added to a suspension of 10 g of Na in PhMe, the reaction
mass is agitated in a stream of N_2 at 50-60°C until the sodium dissolves,
and treated with CO_2 . The resultant mass is evaporated, the residue is washed
with n-hexane and filtered giving compound I or II with a yield of 90%, the
melting point of I is above 400°C, molecular weight 458; the melting point of
II is above 400°C, molecular weight 486. The values of R_f are given for I
and II as well as IR-spectral data. I and II can be used as herbicides, and
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ZIYAYEV, A. A., et al., USSR Author's Certificate No 343975, filed 13 Jul 70,
published 14 Aug 72

also in synthesizing mono- and polyesters containing physiologically active
fragments in the macromolecule.

2/2

Alkaloids

USSR

UDC 547.944.6

TURDIKULOV, Kh., YUSUPOV, M. K., and SADYKOV, A. S., Order of the Red Banner of Labor Tashkent State University im. V. I. Lenin

"Desacetylcolchincin and Desacetylcolchicein -- the New Alkaloids Isolated from Merendera Robusta"

Tashkent, Khimiya Prirodnikh Soyedineniy, No. 2, 1972, pp 247-248

Abstract: Three new alkaloids were discovered in Merendera robusta B g e., collected in 1958. On the basis of UV and NMR spectroscopy the compounds were identified as desacetylcolchicin, desacetylcolchicein and N-methylcolchamine. The structures were verified by preparation of N-methyl and N-acetyl derivatives.

USSR

UDC 547.944/945

PRIMUKHAMEDOV, I., ASLANOV, KH. A., and SADYKOV, A. S., Tashkent Order of the Labor Red Banner State University Imeni V. I. Lenin, Tashkent Pharmaceutical Institute

"Alkaloids From the Roots of *Sophora Griffithii*"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 3, 1972, pp 398-399

Abstract: After extraction with benzene and chromatography on alumina column, roots of *Sophora Graffithii* yielded citizine, N-methylcitizine, and matrine. All products were identified by comparative IR spectroscopy.

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USSR

UDC 547.94 + 543.43

ISHBAYEV, A. I., ASLANOV, KH. A., SADYKOV, A. S., and RAMAZANOVA, M. A., Order of the Labor Red Banner Tashkent State University Imeni V. I. Lenin

"Study of the Quinolizidine Alkaloids by the Method of Optical Rotatory Dispersion (ORD). I. ORD of Lupinin, Citizin, Spartein Group of Alkaloids, and Aphylinic Acid"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 3, 1972, pp 328-333

Abstract: ORD curves of Spartein, Lupinin, Citizin group of alkaloids and some derivatives of aphylinic acid were studied. Among the group of Δ -pyridone ring containing compounds a higher molecular amplitude was exhibited by the epimers with a trans-quinolizidine junction of the nuclei than with the cis-isomers. It has been shown that alkaloids with a lactam group in the external ring have a higher molecular amplitude than corresponding compounds with an Δ -N-C=O group at the internal ring. A relationship has been shown between the form, sign and molecular amplitude of the curves and the type of a build-up of quinolizidine rings, as well as of the molecular rotation and the location of a double bond in ring A or D. The derivatives of Lupinin and aphylinic acid have a smooth curve with minor anomalies shifted towards longer wavelength in case of the aphylinic acid derivatives.

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USSR

UDC 547.944/661.2

ASLANOV, KH. A., ISHBAYEV, A. I., INOYATOVA, K., YUSUPOV, SH., SADYKOV, A. S.,
and ZAKHAROV, V. P., Order of the Labor Red Banner Tashkent State University
Imeni V. I. Lenin

"New Method for Isolation of the Anabasis Aphylla Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, pp 324-328

Abstract: A new method has been developed for isolation of individual Anabasis aphylla alkaloids from technical anabasin sulfate. Direct extraction of anabasin sulfate with chloroform yields aphylline, aphyllidine, and some anabasin. The major portion of anabasin and lucinine is obtained by converting them to nitroso derivatives followed by hydrolysis with 18% hydrochloric acid at 98-100°C. Also a modification was developed for production of the anabasin sulfate. The commonly used sulfation method required 40% H₂SO₄ at 70-80°C, leading to considerable hydrolysis of the alkaloids. This could be avoided preserving most of the alkaloids by the use of 40% H₂SO₄ at 50-60°C.

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USSR

UDC 547.944.6

TURDIKULOV, KH., YUSUPOV, M. K., and SADYKOV, A. S., Order of Red Banner of Labor Tashkent State University imeni V. I. Lenin

"Alkaloids of the Bulbs of Colchicum Kesselringii"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 4, 1971, p 541

Abstract: This study is a continuation of earlier research conducted by the authors on the alkaloid content of Colchium Kesselringii (Kesselring's meadow saffron).

The phenol portion of the fraction of alkaloids of neutral-phenol character was studied with use of thin-layer chromatography (aluminum oxide). The presence of four substances was established: 3-demethyl- β -lumiocolchicine, 2-demethylcolchicine, and two other alkaloids, one with the composition $C_{21}H_{23}O_6N$, which appears to belong to the β -lumiderivative tropolon series.

This particular alkaloid, on the basis of the physico-chemical data obtained, may be the same as the alkaloid S_2 , separated by Canonica et al. from Gloriosa superba L. The authors' study represents the first attempt of any sort to separate alkaloids from Colchicum Kesselringii.

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USSR

UDC 947.94

TOREMURATOV, K., ABDUVAKHADOV, A. A., ASLANOV, Kh. A., and SADYKOV, A. S.,
Tashkent State Univeristy imeni V. I. Lenin

"New Phosphorus-Containing Esters of N(β -ethoxy)-anabasine and Lupinine"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1970, pp 772-773

Abstract: Phosphorus esters of N(β -ethoxy)-anabasine and lupinine are synthesized in a search for cholinolytics: (N(β -ethyl-0-diphenylphosphonyl)-anabasine, methylsulfomethylate of N(β -ethyl-0-diphenylphosphonyl)-anabasine, N(β -ethyl-0,0-isoamylmethylthiophosphonate)-anabasine, 0-diphenylphosphonyl lupinine, and iodomethylate of 0-diphenylphosphonyl lupine. Some of the physicochemical constants of these esters are tabulated.

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- 50 -

UDC 1 947

USER

ABDUVANKHABOV, A. A., ASLANOV, Kh. A., SADYKOV, A. S., and INOYATOVA, K.,
Tashkent State University imeni V. I. Lenin

"Lupinine Esters of O-Alkylmethylphosphonic and O,O-Diethylthiophosphoric
Acids"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 6, 1970, pp 771-772

Abstract: To determine anticholinesterase activity, the authors synthesized
lupinine esters of phosphoric acids: O-ethyl-O-lupinanmethylphosphonate,
O-n-butyl-O-lupinanmethylphosphonate, O,O-diethyl-S-lupinanthiophosphate,
and iodomethylates of O,O-diethyl-S-lupinanthiophosphate and O-n-butyl-O-
lupinanthiophosphonate.

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USSR

SADYKOV, A. S., Professor, Tashkent Medical Institute

"Secretory Functions of the Main Digestive Glands in Ontogenesis During High External Temperature and Sunstroke"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 10, Oct 70, pp 56-60

Abstract: The specific shifts in the activity of the gastrointestinal tract which generally arise on exposure to high temperature and insolation were studied in puppies 1, 2, 3, and 4 months old. It was found that gastric secretion was most sharply reduced by high temperature in the 2-month-old puppies. Enzyme, sodium, and total protein concentrations in the gastrointestinal tract increase with age; in 2-month-old puppies, these enzymes reach the concentrations found in adult dogs. On exposure to high temperature and insolation, the total amount of gastric juice is decreased. Nevertheless, the amylase concentration is reduced only slightly and in some cases it is even increased. The concentrations of all other constituents are reduced. Dehydration of the organism, particularly in young animals, has a significant effect on gastric

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USSR

SADYKOV, A. S., Meditsinskiy Zhurnal Uzbekistana, No 10, Oct 70, pp 56-60

secretion. The tonus of the vagus nerve was also found to have a decisive effect on the depression of gastrointestinal secretion. The frequency and voltage of efferent impulses are reduced under the action of high external temperatures. The thermoregulatory center is excited, leading to a redistribution of blood in the organism.

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1/2 009 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ALKALOIDS OF COLCHICUM KESSELRINGII CORMS -U-
AUTHOR--(02)-YUSUPOV, M.K., SADYKOV, A.S.
COUNTRY OF INFO--USSR
SOURCE--RAST. RESUR. 1970, 6(1), 104-7
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PROCESSED PLANT PRODUCT, ALKALOID, CHEMICAL IDENTIFICATION,
SUCROSE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3006/0459 STEP NO--UR/0503/70/006/001/0104/0107
CIRC ACCESSION NO--AP0134227

2/2 009

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134227

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CORMS CONTAINED 0.13-0.18PERCENT TOTAL ALKALOIDS, DEPENDING ON THE GROWTH PERIOD. COLCHICINE, 2, DEMETHYLCOLCHICINE, KESSELRINGINE, AND 7 OTHER ALKALOIDS WERE IDENTIFIED. THE MAX. CONTENT OF MONO AND DISACCHARIDES WAS FOUND IN FLOWERS, THAT OF STARCH IN THE FRUIT. SUCROSE WAS THE MAIN DISACCHARIDE.

FACILITY: TASHKENT. GOS. UNIV., TASHKENT, USSR.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--04DECTO
TITLE--ISOASTROGALIN, A FLAVONOID GLUCOSIDE FROM GOSSYPIMUM HIRSUTUM,
COTTON, FLOWERS -U-
AUTHOR--(02)-PAKUDINA, Z.P., SADYKOV, A.S.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(1), 27-9
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, GLUCOSIDE, KETONE, FLANONOID
COMPOUND, CHEMICAL IDENTIFICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605002/C12 STEP NO--UR/0393/70/006/001/0027/0029

CIRC ACCESSION NO--AP0139443

UNCLASSIFIED

2/2 007
CIRC ACCESSION NO--AP0139443 UNCLASSIFIED PROCESSING DATE--04DEC70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE GLYCOSIDE, M.
245-6DEGREES (PENTAACETATE M. 180-1DEGREES), WAS IDENTIFIED AS COMPHEROL
3, ALPHA, D, GLUCOFURANOSIDE. FACILITY: NAUCH,--ISSLED. INST. KHIM.
TEKHNOL. KHLOP. TSELLYUL., TASHKENT, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--STRUCTURE OF THE ALKALOID L 5 FROM COLCHICUM LUTEUM -U-
AUTHOR--(03)-CHOMMADOV, B., YUSUPOV, M.K., SADYKOV, A.S.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(1), 82-8
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PROCESSED PLANT PRODUCT, ALKALOID, MOLECULAR STRUCTURE, UV
SPECTRUM, IR SPECTRUM, NUCLEAR MAGNETIC RESONANCE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/0463 STEP NO--UR/0393/70/006/001/0032/0088
CIRC ACCESSION NO--AP0132678
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132678

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO NEW ALKALOIDS L-5 (I) AND L-6 (II) WERE ISOLATED FROM C. LUTEUM TOGETHER WITH COLCHAMINE, 3, DEMETHYLCOLCHAMINE, 3, DEMETHYL, BETA, LUMICOLCHICINE, COLCHICINE, 2, DEMETHYLCOLCHICINE, BETA, LUMICOLCHININE, N, DEACETYL, N, FORMYLCOLCHICINE, AND LUTEIDINE. II, C SUB21 H SUB23 O SUB6 N, M. 291-30 DEGREES (ME SUB2 CO) (ALPHA) SUBD MINUS 41 DEGREES (CO.88, MECH), WAS ISOLATED FROM A PHENOLIC FRACTION AND ITS STRUCTURE WAS NOT DETD.; I, M. 179-83 DEGREES, WAS PROVED TO BE 2, DEMETHYLCOLCHICINE. UV, IR, AND NMR DATA OF I ARE GIVEN AND TRANSFORMATIONS OF I INTO COLCHICINE, ISOCOLCHICINE, 2, DEMETHYLCOLCHICINE, AND 2, DEMETHYLISOCOLCHICINE ARE DESCRIBED. FACILITY: TASHKENT. GOSUNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

1/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--THE ALKALOID L-6, C SUB3 HYDROXYLATED DERIVATIVE OF
GAMMA,LUMICOLCHICINE -U-

AUTHOR--(03)-CHOMMADOV, B., YUSUPOV, M.K., SADYKOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(2), 275

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, ALKALOID, MOLECULAR STRUCTURE, MASS
SPECTRUM, NMR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0467

STEP NO--UR/0393/70/006/002/0275/0275

CIRC ACCESSION NO--AP0132682

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132682

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALKALOID L-6 (M. 291-3DEGREES,
(ALPHA) PRIME20 SUBD MINUS 410DEGREES) FROM COLCHICUM LUTEUM IS,
ACCORDING TO NMR AND MASS SPECTRA; THE AS YET UNKNOWN
3,DEMETHYL,GAMMA,LUMICOLCHICINE (I) THE CORRESPONDING ME ETHER, M.
275-6DEGREES, IS IDENTICAL WITH GAMMA,LUMICOLCHICINE. FACILITY:
TASHKENT. GOSUNIV. IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

009

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--PRODUCT OF THE CONDENSATION OF LUPININIC ACID WITH PIPERIDINE--11-

AUTHOR--(04)--ASLANOV, KH.A., KASYMOV, T.K., SADYKOV, A.S., ISHBAYEV, A.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (4), 492-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ORGANIC ACID, ALKALOID, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3006/0947

CIRC ACCESSION NO--AP0134668

STEP NO--UR/0409/70/000/004/0492/0494

UNCLASSIFIED

2/3 009

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134668

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO A SOLN. OF 11 G LUPINIC ACID IN 120 ML PIPERIDINE WAS ADDED PORTIONWISE 46 G P SUB2 O SUB5 AND THE MIXT. REFLUXED 3 HR TO YIELD 75.5PERCENT D I (X EQUALS O, R EQUALS PIPERIDINO) (D II), B SUB5 228-30DEGREES, (ALPHA) SUBD 54.2DEGREES (ETOH); PERCHLORATE M. 199-200DEGREES (H SUB2 O); HCL SALT M. 114-15DEGREES (ME SUB2 CO). II WAS HYDROLYZED BY 16 HR REFLUX IN 20PERCENT H SUB2 SO SUB4. II (3 G) IN 50 ML ET SUB2 O WAS ADDED TO A WARM SOLN. OF 1 G LIALH SUB4 IN 150 ML ET SUB2 O AND THE MIXT. HEATED 3 HR TO YIELD D I (X EQUALS H SUB2, R EQUALS PIPERIDINO) (D III), B SUB10 158-60DEGREES, (ALPHA) SUBD 196.5DEGREES (ETOH); PICRATE M. 205-60DEGREES (ETOH). III WAS ALSO OBTAINED BY HEATING 3.9 G BROMOEPILUPINANE (D IV) AND 20 ML PIPERIDINE IN A SEALED TUBE AT 15-60DEGREES FOR 6 HR. A SOLN. OF 10 G D I (X EQUALS O, R EQUALS OH) IN 200 ML WAS SATD. WITH HCL FOR 8 HR, THEN KEPT 24 HR AND REFLUXED 4 HR TO YIELD 55PERCENT D I (X EQUALS O, R EQUALS DET) (D V), B SUB4 139-40DEGREES, (ALPHA) SUBD 48DEGREES (ETOH). A SOLN. OF 4.7 G V IN 70 ML ET SUB2 O WAS ADDED TO A WARM SOLN. OF 2 G LIALH SUB4 IN 300 ML ET SUB2 O AND THE MIXT. REFLUXED 4 HR TO YIELD 98.4PERCENT D I (X EQUALS H SUB2, R EQUALS OH (D VI), N. 79-80DEGREES, (ALPHA) SUBD 36.8DEGREES (ETOH). TO A SOLN. OF 3.5 G D VI IN 60 ML C SUB6 H SUB6 WAS ADDED PORTIONWISE 15 G PBR SUB5 AND THE MIXT. REFLUXED 2 HR TO YIELD 98.5PERCENT D IV, B SUB2 126-30DEGREES (ALPHA) SUBD 61DEGREES (ETOH). LUPININE (11 G) WAS BROMINATED UNDER SIMILAR CONDITIONS TO YIELD 99PERCENT L IV, B SUB2 126-30DEGREES, (ALPHA) SUBD MINUS 27.2DEGREES (ETOH); PICRATE M. 134-5DEGREES (H SUB2 O).

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3/3 009 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--1P0134668
ABSTRACT/EXTRACT--L III WAS OBTAINED SIMILARLY TO D III IN 97PERCENT
YIELD, 8 SUB10 158-60DEGREES, (ALPHA) SUBD MINUS 37DEGREES (ETOH);
PICRATE 113-14DEGREES (ETOH). FACILITY: TASHKENT. GOS. UNIV.
IM. LENINA, TASHKENT, USSR.

UNCLASSIFIED

USSR

UDC: 547.944.954

ASLANOV, KH. A., ZAYNUTDINOV, U. N., KUSHMURADOV, YU. K. and SADYKOV, A. S.,
Tashkent State University imeni V. I. Lenin, Tashkent, Ministry of Higher and
Secondary Specialized Education UzSSR

"New Didehydro-Derivatives of Matrine [Isolupanine] Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1970, p 381

Abstract: From matrine via 5-hydroxy-6,7-dehydromatrin, a matrine series didehydro-compound where double bonds encompass three or four optical centers was synthesized. Dehydration of 5-hydroxy-6,7-dehydromatrine with P_2O_5 by the Bol'man method led to a complex mixture of compounds, while dehydration in an n-xylol solution led to the matrine didehydroderivative with a 40% yield. This study suggests that in selecting conditions for hydrogenation of the didehydro product several new stereoisomers of matrine can be obtained.

USSR

UDC: 547.944.6

CHOMMADOV, B., YUSUPOV, M.K., SADYKOV, A.S., Tashkent State University imeni V.I. Lenin, Tashkent, Ministry of Higher and Secondary Specialized Education Uzbek SSR

"The Structure of Alkaloid L-5 from Colchium luteum"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 1, 1970, pp 82-88

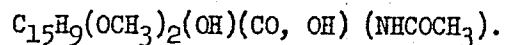
Abstract: Alkaloids were extracted from the plant body of the Colchium luteum Baker (meadow saffron) which grows in the Sazan-Ata Canyon of the Chimgentskaya Oblast. The alkaloids extracted in the flowering stage amounted to 1.58%, and in the fruiting stage -- to 0.29%. Absorption chromatography on aluminum oxide revealed that the alkaloid mixture from the flowering stage is composed of colchicine, 3-demethylcolchicine, 2-demethylcolchicine and 3-demethyl- β -lumicolchicine. The first two bases with the tropolone ring and 3-demethyl- β -lumicolchicine had never been extracted from saffron before. Analysis of the alkaloid mixture extracted from the fruiting stage showed colchicine, β -lumicolchicine, N-desacetyl-N-formylcolchicine, 2-demethylcolchicine, 3-demethyl- β -lumicolchicine, luteidine (alkaloid L-2) and new compounds with R_f of 0.21 and 0.76 (system 1) named L-5 and L-6 respectively. Alkaloid L-5, with an empirical formula of C₂₀H₂₁O₆N is a yellow amorphous substance which melts at 179-183°C. It makes up the principal part of the phenol-acid fraction of the alkaloids. Spectroscopic analysis shows that this compound contains the tropolone ring. Spectroscopic and functional

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USSR

CHOMMADOV, B., et al, Tashkent, Khimiya Prirodnikh Soyedineniy, No 1, 1970, pp 82-88

data suggest the following formula:



It was established that the structure corresponds to 2-demethylcolchicine, which is present in all colchicine-bearing plants of Central Asia, and may be an intermediate product in the biosynthesis of colchicine. Paper chromatography showed that the alkaloid mixture also contains three new alkaloids with R_f of 0.38, 0.40 and 0.86.

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USSR

UDC 547.944.6

TURDIKULOV, KH., YUSUNOV, M. K., SADYKOV, A. S., Tashkent Order of the Red
Banner or Labor State University imeni V. I. Lenin

"Structure of the K-13 Alkaloid from Colchicum Kesselringii"
Tashkent, Khimiya Prirodnykh Soyedineniy, No 4, 1972, pp 502-505

Abstract: A previous report was published on the separation of alkaloids from the bulbo-tubers Colchicum kesselringii Rgl. (Kh. Turdikulov, et al., KhPS, 541, 1971). A study has been made of the unknown phenol substance with R_f 0.31 called K-13 alkaloid. It belongs to the series of photochemical isomers of tropolonic alkaloids. The K-13 composition is $C_{21}H_{23}O_6N$. It has a melting point of $287-288^\circ$, $[\alpha]_D^{25} -420^\circ$. The ultraviolet, infrared, nuclear magnetic resonance and mass spectral data indicate the presence and the location of the corresponding functional groups. Beginning with the negative specific rotation, it is concluded that the K-13 alkaloid belongs to *sis-trans* - isomers which is confirmed by methylation in γ -lumicolchicine. The position of the hydroxyl group on the C_2 of the K-13 alkaloid was determined on the basis of the nuclear magnetic resonance spectrum and by comparison with known compounds of similar structure.

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USSR

UDC 547.944.945

ZUPAROVA, K. M., CHOMMADOV, B., YUSUPOV, M. K., SADIKOV, A. S., Tashkent
Order of the Red Banner of Labor State University imeni V. I. Lenin

"Alkaloids of Merendera Jolantae"

Tashkent, Khimiya Prirodnikh Soyedineniy, No 4, 1971, pp 487-493

Abstract: A study was made of the alkaloids of Merendera Jolantae in which it was discovered that along with tropolonic compounds it also contains bases with other hydrocarbon rings. By extraction of 48 kg of the above-ground parts of the merendera, 0.59% of the total alkaloids were isolated, including 0.28% of the bases. The compounds β -lumi-colchicine, colchicine, 2-dimethyl-colchicine and the unknown lumi-derivative -- MJ-3 alkaloid (melting point 268-270°) and also colchicine were obtained by chromatography on adsorbent fractions of neutral and phenol compounds. Colchamine, colchaneine and the new bases MJ-1, MJ-2 and MJ-4 isolated from the bases and phenon-basic fractions. The presence of 3-demethylcolchamine and four more unknown, non-tropolonic compounds with R_f 0.40, 0.49, 0.53 and 0.54 was determined by chromatographic methods. The formula $C_{16}H_{16}(OH)(OCH_3)(CO)(NCH_3)$ was proposed for Jolantamine (the base MJ-1) by spectral methods.

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USSR

UDC 547.944/945

ABDUSALAMOV, B. A., ASLANOV, KH. A., SADYKOV, A. S., and KHOROSHKOVA, O. A.,
Tashkent Order of the Labor Red Banner State University imeni V. I. Lenin

"Investigation of the Alkaloid Content of Sophora Japonica"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 5, 1972, p 658

Abstract: The alkaloids were extracted from dried, ground seeds of Sophora japonica L. After deoiling with petroleum ether, the seeds were treated with a methanol solution of potassium hydroxide, dried and extracted with chloroform. After reextraction with sulfuric acid and alkalization with 10% KOH, the material was again extracted with chloroform to yield a group of eight alkaloids, from which it was possible to identify citizine, N-methylcitizine, sophocarpine, and matrine.

UNCLASSIFIED

PROCESSING DATE--13NOV70

TITLE--PERIODIC SHOCK WAVES IN A GAS -U-

AUTHOR--(03)-GALIYEV, SH.U., SADYKOV, A.V., LGAMOV, M.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIKOSTI I GAZA,
MAR.-APR. 1970, P. 57-66

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SHOCK WAVE ANALYSIS, SHOCK WAVE FORMATION, SHOCK TUBE,
HARMONIC OSCILLATION, SUCCESSIVE APPROXIMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1198

CIRC ACCESSION NO--AP0124852

STEP NO--UR/0421/70/000/000/0057/0066

UNCLASSIFIED

272

045

CIRC ACCESSION NO--AP0124852
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. EXPERIMENTAL INVESTIGATION OF LONGITUDINAL NONLINEAR OSCILLATIONS OF A GAS EXCITED IN A CLOSED TUBE. THE AMPLITUDES AND PROFILES OF THE SHOCK WAVES OBTAINED ARE COMPARED WITH THEIR THEORETICAL VALUES FOR EXCITATION FREQUENCIES CLOSE TO THE FIRST NATURAL FREQUENCY OF THE GAS COLUMN. THE EXPERIMENTS REVEALED THE EXISTENCE OF SHOCK WAVES AT AN EXCITATION FREQUENCY ONE HALF THE FIRST NATURAL FREQUENCY. A THEORY IS DEVELOPED FOR THIS CASE, WITH THE AID OF SUCCESSIVE APPROXIMATIONS.

UNCLASSIFIED

USSR

S
GALIYEV, Sh. U., IL'GAMOV, M. A., SADYKOV, A. V. Kazan'

"Periodic Shock Waves in a Gas"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 2, March-April 1970, pp 57-66

Abstract: This article contains the results of experimental investigations of longitudinal non-linear oscillations of a gas excited in a closed tube. The amplitudes and profiles of the shock waves are compared with their calculated values at excitation frequencies ω close to the first natural frequency of the gas column $\Omega = \pi a_0 / L$ where a_0 is the speed of sound in the unperturbed gas, and L is the length of the tube. The existence of shock waves has been discovered at an excitation frequency half the first natural frequency. The theory based on the method of successive approximations is developed for the latter case. A generalization is presented for excitation frequencies in the vicinity of $\omega = N \Omega$ ($2N = 1, 3, 5, \dots$).

The experimental setup and procedure are described, and the readings of a pressure-sensitive sensor at the closed end of tubes 340 and 170 cm long are presented in graphical form for a broad range of excitation frequencies. The experiment shows the low effect of viscosity on the amplitude of the shock waves.

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USSR

GALIYEV, SH. U., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti I Gaza, No 2, March-April 1970, pp 57-66

It is pointed out that whereas oscillations near $\omega = N \pi a_0 / L$ ($N = 1, 2, 3, \dots$) have been investigated quite thoroughly previously, by repeating the calculations performed in this paper for this case, within the framework of the theory of an ideal liquid it is possible to construct a more exact solution than was found earlier since some new second order variables are considered here, and the boundary condition in the plunger is satisfied for $x = L + Z \cos \omega t$ (and not for $x = L$).

Pharmacology and Toxicology

USSR

UDC 598.196:577.15

SAKHIBOV, D. N., AKHUNOV, A., and SADYKOV, F.
Academy of Sciences, Uzbek SSR

Institute of Biochemistry

"Isolation of ATP-Pyrophosphatase and 5-Nucleotidase From Viper Venom"
Tashkent, Uzbekskiy Biologicheskii Zhurnal, No 4, 1971, pp 67-68

Abstract: Gel filtration of a 10% solution of viper venom yielded four fractions. ATP-pyrophosphatase and 5-nucleotidase activity were detected in the first fraction (and in part in the second fraction). The specific activity of the ATP-pyrophosphatase in the first fraction was 10.8 times higher than that of the whole venom, while 5-nucleotidase activity was 10.2 times higher. Further purification of this fraction by ion-exchange chromatography resulted in four fractions, but enzyme activity was detected in only the first. The specific activity of ATP-pyrophosphatase and 5-nucleotidase was 13.5 and 16.6 times higher, respectively, than that of the whole venom.

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USSR
ENGINEERING
Aeronautical and Space

USSR

SADYKOV, F. R. and FROLOV, P. A.

UDC 629.78.017.2

"Search for Correcting Device Parameters in Complex Linear Systems"

Tr. Mosk. Aviats. In-ta (Works of the Moscow Aviation Institute), No 240, 1972, pp 46-52 (from Referativnyy Zhurnal--Raketostroyeniye, No 5, May 73, Abstract No 5.41.141 by the authors)

Abstract: One of the basic problems in the theory of automatic control is development of methods for synthesis of control systems which satisfy specified combinations of technical requirements. The problem of synthesis of linear systems of control can be divided into two steps. In the first step a rational structural diagram is prepared in which solution of the formulated problem is principally possible; type and point of inclusion of the correcting devices are determined. In the second step those numerical values are found for the parameters of the correcting devices which will satisfy the technical requirements set forth for the system. In the present article the use of methods of mathematical programming is examined for the second step of linear system synthesis. 5 bibliographic references.

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USSR

UDC 629.78.076.6

AGLIULLIN, I. N. and ~~SADIKOV, I. KH.~~

"A Problem in Statistical Optimization of Flight Craft Motion"

Tr. Kazan. aviats. in-ta (Transactions of the Kazan' Aviation Institute),
1970, vypusk 119, pp 92-99 (from Referativnyy Zhurnal-Raketostroyeniye,
No 12, Dec 70, Abstract No 12.41.51, by E. R. S.)

Translation: In a homogeneous gravity field a solution is given for the problem of the destruction by a two-stage rocket (R) of target located at a finite number n of intervals adjoining one another and whose sum does not exceed the radius of action of R. The entry of the R at any interval is random and is determined by an assigned probability density. Rocket control and arrangement of the interval bounds minimizing fuel consumption are determined. In spite of the outwardly stochastic formulation, the problem is essentially determinate, since the probabilities of entry into each of n intervals appear only as multipliers in the minimized functionals and are explicit functions only of the interval bounds. A numerical example is solved by the method of fastest descent. Tables: 1. Bibliography: 3 entries.

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020
UNCLASSIFIED
PROCESSING DATE--20NDV70
TITLE--USE OF A GAMMA ACTIVATION METHOD FOR THE QUANTITATIVE DETERMINATION
OF NITROGEN AND PHOSPHORUS IN MODIFIED CELLULOSE PREPARATIONS -U-
AUTHOR--(OS)--YUDASHEV, A.YU., MILLER, R.A., KHAKIMOV, M., MURATOVA, U.M.,
SADYKOV, M.M.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 957-9.
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, CHEMISTRY
TOPIC TAGS--QUANTITATIVE ANALYSIS, NITROGEN ISOTOPE, PHOSPHORUS ISOTOPE,
CELLULOSE, X RAY RADIATION, NEUTRON ACTIVATION ANALYSIS, GAMMA
RADIATION, RADIOACTIVE DECAY, PHOTONUCLEAR REACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1380
STEP NO--UR/0459/70/012/004/0957/0959
CIRC ACCESSION NO--AP0135054
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135054

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE IRRADN. OF MODIFIED CELLULOSE
CONTG. P AND N WITH GAMMA RAYS OF 15,MEV ENERGY CAUSES THE FOLLOWING
PHOTONUCLEAR PROCESSES: PRIME14 N PLUS GAMMA YIELDS PRIME13 N PLUS N
(ABOVE 10.5 MEV THRESHOLD) AND PRIME31 P PLUS N (ABOVE 12.05,MEV
THRESHOLD). PRIME12 C AND PRIME16 O REQUIRE ENERGIES GREATER THAN 15
MEV TO REACT. SINCE THE HALF LIVES OF PRIME13 N AND PRIME30 P ARE 10.08
AND 2.5 MIN, RESP., MEASUREMENT OF THE RADIOACTIVITY DECAY AFTER IRRADN.
GIVES A MEANS FOR RAPID DETN. OF P AND N. FACILITY: TASHKENT.
GGS. UNIV. IN. LENINA, TASHKENT, USSR.

UNCLASSIFIED

Polymers and Polymerization

USSR

UDC 541.64:547.458.81

MIRKAMILOV, I. M., AZIZOV, U., ~~SADYKOV, M. U.~~, and USMANOV, KH. U., Scientific Research Institute of Chemistry and Cotton Cellulose Technology

"Radiation Induced Graft Copolymerization of Methyl Methacrylate From the Vapor Phase Onto Cellulose"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 14, No 8, Aug 72, pp 1704-1708

Abstract: The characteristics of grafting copolymerization of methyl methacrylate from vapor phase have been investigated, the main thrust being in the direction of the development of grafting conditions which would preclude the formation of homopolymers. The grafting was studied under conditions of γ -irradiation of the system cellulose-monomer as well as when the preirradiated cellulose was treated with methyl methacrylate vapor. Co^{60} was the source of radiation. It was established that grafting carried out with concurrent irradiation was accompanied by intensive homopolymerization of the monomer. Grafting onto preirradiated cellulose in presence of water vapor proceeds at a higher rate without the formation of a homopolymer. The yield of the grafted copolymer of polymethylmethacrylate depends on the structure of cellulose preparation, decreasing in the order: cotton > flax > ramie.

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USSR

UDC 539.3:534.231.1

SADYKOV, R.

"Calculation of Unstable Motion of Vapor in an Elastic Medium by the
"Method of Particles""

Vopr. Vychisl. i Prikl. Mat. Vyp. 11 [Problems of Computational and Applied
Mathematics, No 11 -- Collection of Works], Tashkent, 1972, pp 170-177,
(Translated from Referativnyy Zhurnal, Mekhanika, No 11, 1972, Abstract
No 11 V88 by M. T. Zakhidov).

Translation: A rigid ball begins to move according to the rule $V = V(t)$ in
an unlimited quiescent elastic medium at moment in time $t = 0$. The continuous
elastic medium is replaced by a system of N material points, for which the
Lagrange function is written. Using Hooke's law and the condition of attach-
ment to the surface of the sphere, as well as the equation of motion of the
points on the sphere, the author produces a system of equations for the un-
known displacements. The calculations were performed with various particle
dimensions. A graph is presented of the change in the function

$$R(\tau) = -F(t)/2\pi r_0^2 (\lambda + 2\mu)$$

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USSR

UDC 539.3:534.231.1

SADYKOV, R., Vopr. Vychisl. i Prikl. Mat. Vyp. 11, Tashkent, 1972, pp 170-177.

(r_0 is the radius of the sphere, $F(t)$ is the resistance of the medium) as a function of dimensionless time τ . The results are compared with a known analytic solution (Babichev, A. I., Saidov, T. Kh., Khidoyatov, K., Dokl. AN UzSSR, 1967, No 2, pp 8-11, RZhMekh., 1967, 10 V17).

2/2

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1/2 014 UNCLASSIFIED PROCESSING DATE—30OCT70
TITLE—EFFECTIVENESS AND PERIODS OF COTTON DEFOLIATION UNDER VARIOUS
CLIMATIC CONDITIONS —U—
AUTHOR—(05)—ZAKIROV, T.S., KADRALIYEV, S.I., ALLAMURATOV, A.D., DOTSENKO,
A.S., SADYKOV, SH.B.
COUNTRY OF INFO—USSR

SOURCE—AGROKHIMIYA 1970, (2), 139-43

DATE PUBLISHED—70

SUBJECT AREAS—AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS—DEFOLIANT AGENT, FIBER PLANT, CYANAMIDE, MAGNESIUM COMPOUND,
CHLORATE

CONTROL MARKING—NO RESTRICTIONS

DOCUMENT CLASS—UNCLASSIFIED

PRUXY REEL/FRAME—2000/0187

STEP NO—UR/0485/70/000/002/0139/0143

CIRC ACCESSION NO—AP0123956

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE—30OCT70

CIRC ACCESSION NO--AP0123956

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. RESULTS OF DEFOLIATION WITH BUTIPHOS, CYANAMIDE, AND WITH MG(CLO SUB3) SUB2 UNDER VARIOUS CLIMATIC CONDITIONS AND DEVELOPMENT OF COTTON PLANTS ARE DISCUSSED. THE MOST EFFECTIVE WAS BUTIPHOS, ESP. WHEN SPRAYED AT 3 KG-HA+ FACILITY: VSES. NAUCH. ISSLED. INST. KHLOPKOVOD., AKKHAVAK, USSR.

UNCLASSIFIED

USSR

UDC: 51:155.001.57:681.3.06

SADYKOV, S. S., FEDOTOV, N. G., MAKVETSOV, Ye. N.

"A Universal Algorithm for Recognizing Handwritten and Printed Symbols"

V sb. Vopr. kibernet. i vychisl. matem. (Problems of Cybernetics and Computer Mathematics--collection of works), Vyp. 36, Tashkent, 1970, pp 35-43
(from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V654)

Translation: An algorithm is proposed for operation of a reading machine which, in the authors' opinion, permits perception of information on a symbol regardless of the specific characteristics of its graphic representation. An alphabet of 33 letters and 10 digits is examined. The directions of the outline of the symbol were taken as the characteristics for recognition. It is proposed that ruled blanks be used for writing the symbols. This standardizes writing of the symbols to some extent, and what is important, ensures separate writing of letters. The algorithm provides for transferring an image of the symbol to an operational memory, the symbol being recorded on a ferrite matrix analogously to its recording on paper. Redundant information is then eliminated during the operation of refinement of the symbol. After refinement of the outline is completed, the operation of "reading" of the symbol begins, i. e. the image of the symbol is replaced by an enumeration of the directions of its outline. The recognition process

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SADYKOV, S. S. et al., Vopr. kibernet. i vychisl. matem., Vyp. 36, Tashkent,
1970, pp 35-43

is completed by comparing the resultant sequence of directions with reference
sequences. M. Chelyshev.

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USSR

UDC 621.396.61.029.64

SHMILEVICH, M. S., SADYKOV, V. N., IL'ICHEV, Yu. I.

"On the Design of SHF Power Stabilizing Systems"

Tr. Novosib. elektrotekhn. in-ta (Works of the Novosibirsk Electrical Engineering Institute), 1970, vyp. 2, kn. 1, pp 119-127 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7D383)

Translation: The basic problem in designing closed static systems for automatic power control of SHF devices is providing the required precision in satisfying the condition of dynamic stability. A method of designing automatic power control systems is described which assures a static error within given limits. However, in addition to the static error, the total error of the system contains components which owe their existence to nonuniformity of the frequency response of the transmission factor of the directional coupler and the SHF detector, and the instability of the transmission factor of all elements in the feedback circuit. Improvement of output power stability requires not only a reduction in the static error of the system, but also an improvement in the uniformity of the frequency response in the working frequency range, as well as in the stability of the transmission factor for the given circuit elements. Bibliography of four titles. G. E.

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Alkaloids

USSR

UDC 947.943

POROSHIN, K. T. (DECEASED), SADYKOV, YU. D., KHAYDAROV, K. KH., VOYSI-KOL'-
SHTEYN, A. L., DEGTYAREV, V. A., and BURICHENKO, V. K., Institute of Chemistry
Academy of Sciences TadzhSSR

"Physiologically Active Papaverine Derivatives"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 1, 1972, pp 83-84

Abstract: Papaverine reacted with acyl chlorides of sulfonic acids, carboxylic
acids and chloroacetic acid, yielding N-benzenesulfonylpapaverinium chloride,
m.p. 209° (dec.); N-benzoylpapaverinium chloride; m.p. 193°; N-acetylpapaverinium
chloride, m.p. 217° (dec.); and the chloride of N-papaverineacetic acid, m.p.
210° (dec). The products exhibited hypotensive and spasmolytic properties.

USSR

UDC 77

SADYKOVA, A. A., VLASOV, V. F., MEYKLYAR, P. V.

"Luminescence and Photo-emf of Photographic Layers"

V sb. Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Priroda fotogr. chuvstvitel'nosti (International Congress on Photographic Science, Moscow, 1970, Nature of Photographic Sensitivity -- Collection of Works), no place of publication given, Vneshtorgizdat, no year given, pp 87-90 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12D1318)

Translation: The behavior of the orange photoluminescence band of AgBr(I) which is caused by the recombination of electrons at impurity centers with free holes is studied. The orange photoluminescence band arises in the emulsion and intensifies during aging, especially in small-grained emulsions; it is only for emulsions with cubic crystals obtained by a double-jet method that there is an intense orange photoluminescence band before aging. The band was observed for powders but it weakens or generally disappears with the growth of the iodine concentration. For large single crystals the band is clear only in the presence of Ag₂S impurities. IR-quenching of the band, identical in spectral characteris-

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SADYKOVA, A. A., et al, Mezhdunar. kongress po fotogr. nauke, Moskva, 1970, Priroda fotogr. chuvstvitel'nosti, no place of publication given, Vneshtorgizdat, no year given, pp 87-90

tics, was observed in all objects; the magnitude of the quenching per unit of IR energy was proportional to $(h\nu)_{IR}^2$: i.e., the recombination centers do not form local levels in the forbidden zone (quenching for these is proportion to $\sqrt{h\nu}$) but form a subzone lying below the conductivity zone by several tens of electron volts (this is evaluated from the intersection of lines with the abscissa). It is evident from this that the orange photoluminescence band is independent of the presence of S^{2-} , and its centers can only be Ag. The correlation between the intensity of the orange photoluminescence band and the sensitivity of the emulsions occurs rarely: i.e., in the general case the centers of radiative recombination are smaller than the sensitivity centers, especially in highly sensitive emulsions. Measurements of the photo-emf, however, showed the relationship between S^{2-} ions and the latter and the formation of p-type acceptor centers during aging. The combined data on photo-emf and orange photoluminescence bands thus make it possible to follow the effect of different centers on the formation of sensitivity. 10 references. A. L. Kartuzhanskiy.

Polymers and Polymerization

USSR

UDC 542.955:546.27'161:547.1'118:678.643'42'5:678.043

SADYKOVA, E. M., CHELNOKOVA, Z. B., KOLLI, I. D., RODIONOV, R. A., and
SPITSIN, VIKT. I., Moscow State University Imeni M. V. Lomonosov

"Addition Products of Boron Trifluoride With Phosphines as Reinforcement
Agents for Epoxy Resins"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72,
pp 786-790

Abstract: Addition complexes of boron trifluoride and phosphines: P-tri-n-
-butyl-B-trifluorophosphineboron (BPB), and P-triphenyl-B-trifluorophosphine-
boron (PPB) were used as reinforcing agents for the epoxy resin ED-5. Optimal
conditions for their use were as follows: 25 parts by weight of the complex
per 100 of the resin, temperature -- 150°C. duration of the process -- 12 hrs.
The products obtained showed excellent durability even at elevated tempera-
tures, improved fire-retardant properties, and excellent light transmission.
Infrared spectra of the products were studied and on their basis it was shown
that the reactions involved in above processes go in two directions: reaction
of the complex with the oxygen of the epoxide group leading to the formation
of a phosphine ion which then acts as a stabilizer towards oxidative degrada-

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USSR

SADYKOVA, E. M., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72, pp 786-790

tion, and a reaction of the complex with the hydroxyl group oxygen in presence of air; this leads to a reduction of the number of hydroxyl groups in the reinforced product and binding of the air oxygen, so that the degradation is slowed down and the transparency of the product is improved.

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LSSR

UDC 541.1:546.27*16:547.1'118

SPITSYN, VIKT. I., KOLLI, I. D., SADYKOVA, E. M., and NESTERENKO, R. G.,
Moscow State University imeni M. V. Lomonosov

"A Study of Certain Adducts of Boron Trifluoride with Trialkyl(aryl)-phosphines"

Moscow, Izvestiya Akad, Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 72, pp 45-50

Abstract: Published data on the halogenic borophosphanes are still very scant. The few compounds thus far obtained are recommended as antinock additives for engine fuels, hydraulic fluids, dielectrics and catalysts for polymerization. In addition, borophosphanes containing a fluorine atom with the boron have gone almost entirely unstudied.

Using trialkyl(phenyl) phosphines in combination with etherate of biron trifluoride, the authors obtained a number of fluorine-derivative borophosphanes, for which chemical analyses were made for those of type $F_3B \cdot PR_3$, infrared spectra were obtained for those of type $F_3B \cdot PR_3$, and both thermal and chemical analyses for the products of decomposition of those of type $F_3BP(C_6H_5)_3$ heated in nitrogen and air were made. Decomposition was found to occur at 180-200°C in the case of air, and 200-220°C in the case of nitrogen. Complete graphic summary of data obtained accompanies the paper.

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USSR

UDC 541.572.5+541.572.8

ROMM, I. P., SADYKOVA, E. M., GUR'YANOVA, Ye. N., KOLLI, I. D., and KOCHESKOV, K. A., Academician, Physical Chemistry Institute imeni L. Ya. Karpov, Moscow, and Moscow State University imeni M. V. Lomonosov, Moscow

" p π -Conjugation in Triphenylphosphine"

Moscow, Doklady Akademii Nauk SSSR, Vol 195, No 2, 1970, pp 372-375

Abstract: The p π -conjugation (interaction of the undivided electron pair at P with the π -electrons of the aromatic system) of Ph_3P was studied on the basis of the dipole moments (d. m.) of complexes $\text{R}_3\text{P}.\text{MX}_3$ (R = Bu, hexyl, octyl, Ph) of phosphines, which are active n-donors, with a number of acceptors ($\text{MX}_3 = \text{AlBr}_3, \text{GaCl}_3, \text{BCl}_3$) and of the heats of formation of $\text{R}_3\text{P}.\text{MX}_3$ ($\text{MX}_3 = \text{AlBr}_3, \text{GaCl}_3$). The thermal effects involved in the substitution of R_3P with dimethylcyclohexylamine in $\text{R}_3\text{P}.\text{BF}_3$ (R = Bu, hexyl, Ph) and of Ph_3P with Bu_3P in $\text{Ph}_3\text{P}.\text{BCl}_3$ were also considered. The d. m. of complexes $\text{Alkyl}_3\text{-P}.\text{AlBr}_3$ were close to each other, but the heat of formation of the second was much lower than that of the first because of energy losses associated with breaking of the p π -conjugation in R_3P during complex-formation. On the basis of this difference and similar differences for complexes with other

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USSR

ROMM, I. P., et al, Doklady Akademii Nauk SSSR, Vol 195, No 2, 1970, pp 372-375

acceptors (those for complexes with BF_3 and BCl_3 were calculated from the thermal effects in the substitution reactions), the p π -conjugation energy E_c in Ph_3P was estimated at 11.7 ± 2 kcal/mole as an average of values based on data for complexes with the four acceptors MX_3 . E_c for Ph_3P was lower than that for N-methyldiphenylamine ($E_c = 14.9$ kcal/mole) and much lower than that for Ph_3N .

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USSR

UDC 541.49:547.558 + 546.46

ROMM, I. P., SADYKOVA, E. M., GUR'YANOVA, Ye. N., and KOLLI, I. D., Scientific Physical-Chemical Research Institute Imeni L. Ya. Karpov and Moscow State University Imeni M. V. Lomonosov

"Study of the Phosphine Complexes With the III Group of Metal Halides and $p\pi$ Conjugation in Aromatic Phosphines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 728-739

Abstract: Heat effects of the formation reactions of aromatic and aliphatic phosphine complexes with boron trifluoride and trichloride aluminum bromide and gallium trichloride and the dipole moments were determined in benzene at 25°. Symbatic changes were observed of the degree of charge transfer and heats of the formation of donor-acceptor complex bonds in a series of aliphatic phosphine complexes. The polarity and complex stability change in the order $\text{BF}_3 < \text{AlBr}_3 \approx \text{GaCl}_3$. The π integrals of the overlap of C-N and C-P bonds in aromatic amines and phosphines have been calculated. It has been shown that the hybrid sp orbital of the free pair of electrons at the phosphorus atom is capable of real $p\pi$ overlap. The $p\pi$ energies of conjugation in the molecules of dipropylphenylphosphine, ethyldiphenylphosphine, and triphenylphosphine have been determined by the method of complex formation.

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USSR

YAKUBOV, Sh. Kh., SEMENOV, B. F., MAKUMOV, S. S., KARASEVA, P. S., SADYKOVA, V. D., and CHUMIKHIN, S. P., Institute of Poliomyelitis and Viral Encephalitis Academy of Medical Sciences USSR; and Uzbek Scientific Research Institute of Epidemiology, Microbiology, and Infectious Diseases

"Serological Data on the Circulation of Virus of the Tachina Fly (Larvacoridae) in the Uzbek SSR"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 4, 1971, pp 27-30

Abstract: A serological study was carried out to determine the possible foci of the Tachina virus in Uzbekistan. Human and domestic animal sera were collected in Tashkent, Sverdlovskaya, Samarkandskaya and Kashkadarskaya Oblasts, and in the Karakalpak Autonomous Soviet Socialist Republic. Virus-neutralizing antibodies were found in all areas studied in 16.7% of the human population and 15.5% of animals with titers of 1:10-1:80. Immunity was lower in people inhabiting mountainous and foothill regions than in the plains, except for Kashkadarskaya oblast, where the percentage of antibodies in the plains was lowest probably because of weakly developed irrigation and resulting lesser number of flies. Statistically, immunity was higher among older inhabitants. The presence of antibodies proved that the virus

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USSR

YAKUBOV, SH. Kh., et al, Meditsinskiy Zhurnal Uzbekistana, No 4, 1971,
pp 27-30

does circulate within Uzbekistan, as it apparently also does in other southern
regions of the USSR, where investigations showed similar results.

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USSR

UDC 612.8.015.33:612.8.
014.41

MEYERSON, F. Z., KRANIS, D., and SADYRALIYEV, T. S., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Dynamics of Protein Synthesis in Rat Brain Neurons and Glial Cells During Adaptation to High-Altitude Hypoxia"

Leningrad, Tsitologiya, No 3, 1973, pp 324-329

Abstract: Protein synthesis was studied by the autoradiographic method in pyramidal and glial cells of the cerebral cortex and in neurons and glial cells of the supraoptic nucleus of the hypothalamus in rats exposed to intermittent hypoxia (6 hours a day in a pressure chamber) and continuous hypoxia (at an altitude of 3200 m in the Tyan Shan mountains). Adaptation to intermittent hypoxia produced essentially the same changes in protein synthesis as did adaptation to continuous hypoxia. In both cases, protein synthesis gradually increased in the cortical and hypothalamic nuclei while the cells and nuclei enlarged. In the glial cells, however, protein synthesis intensified more rapidly, reaching a peak in the initial stage of adaptation, but the cell nuclei shrank rather than enlarged. The article concludes with a discussion of the possible mechanism of the stimulation of protein synthesis by hypoxia and suggests possible reasons for the opposite changes in the size of the neurons and glial cells.

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USSR

UDC 591.481.1:591.543

MEYERSON, F. Z., KRANTS, D., SADYRALIYEV, T. S., and AYNOKENOVA, R. R.,
Institute of Normal and Pathological Physiology, Academy of Medical Sciences
USSR, Moscow

"Dynamics of Protein Synthesis in the Neurons and Glia of the Brain for
Adaptation to High-Altitude Hypoxia"

Moscow, Doklady Akademii Nauk SSR, Vol 204, No 3, 1972, pp 759-762

Abstract: Adaptation is accompanied by acceleration of the development and an increase in the degree of retention of conditioned reflexes, an increase in the resistance of memory to electroshock and also an increase in the resistance of animals to sound stimulation causing convulsions. For correct evaluation of these facts it is necessary to discover in which cellular structures of the brain the above-described synthesis activation is realized since this permits an approach to the understanding of its specific role in the variations of the brain functions which are actually observed on adaptation to high-altitude hypoxia. Accordingly, an autoradiographic method was used to study the dynamics of protein synthesis in the gigantic pyramidal neurons and glial cells of the cerebral cortex and also in the neurons and glial cells of the supra-optical nucleus of the hypothalamus on adaptation to continuous and discontinuous

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USSR

MEYERSON, F. Z., et al., Doklady Akademii Nauk SSR, Vol 204, No 3, 1972, pp 759-762

hypoxia. The experiments were performed on male Wistar rats weighing 140-160 grams. The data curves presented indicate that both in the cerebral cortex and in the supraoptical nucleus of the hypothalamus adaptation to continuous hypoxia is accompanied by theoretically the same changes in intensity of the protein synthesis as adaptation to discontinuous hypoxia. In both cases, gradually progressive activation of protein synthesis is observed in the cortical and hypothalamic neurons with a simultaneous increase in the size of the cells. In the glial cells the synthesis activation increases more steeply. It is greatest in the initial period of adaptation and is accompanied not by an increase but by a decrease in the size of the cell nuclei. Just as for adaptation to discontinuous hypoxia, the activation of the synthesis and an increase in the neuron size were more pronounced for the cortex than for the hypothalamus.

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USSR

UDC: 539.374

KOROTKIKH, Yu. G., SADYRIN, A. I.

"Thermal Shock in Elastoplastic Shells"

Uch. zap. Gor'kov. un-t (Scientific Notes. Gor'kiy University), 1971, vyp. 142, pp 51-58 (from RZh-Mekhanika, No 5, May 72, Abstract No 5V401)

Translation: The authors study wave processes which take place during heat shock in an elastoplastic reinforced material with regard to the temperature dependence of the mechanical characteristics of the material. It is assumed that the given material may be described by the Kadashevich-Novozhilov-Palley plasticity theory with translational reinforcement. In this regard, the moduli, yield stress and coefficient of linear expansion are assumed to be functions of temperature. The equations of motion are integrated by successive calculations for small time steps. For this purpose the defining equations are presented in finite-difference form on a space-time Lagrange grid. AMG-3 aluminum alloy is chosen as the research material. The authors consider problems on rapid heating of the thin inner layer ($\delta = 0.2$ mm) of a shell with rise in heating temperature to 700° C in $t = 0.5$ μ s, and on heating of centrally symmetric spherical shells uniformly with respect to thickness.

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USSR

KOROTKIKH, Yu. G., SADYRIN, A. I., Uch. zap. Gor'kov. un-t, 1971, vyp. 142, pp 51-58

In analyzing the solutions, an investigation was made into the processes of development in time of plastic deformations in different points of the shell which were found to be cyclic in nature; this is attributed to the interaction of waves of rarefaction and compression. Yu. V. Suvorova.

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- 777 -

USSR

UDC 621.791.89

BEREZINA, N. V., SAENKO, M. I., ISHCENKO, A. Ya., KUDINOV, V. M.

"Strengthening of Welded Joints in Aluminum Alloys by Explosive Processing"

Kiev, Avtomaticheskaya Svarka, No 1, Jan 73, p 71.

Abstract: The influence of explosive processing was tested on joints of sheets 3 mm thick of AMg6N alloy with 40% cold working. The strength and yield point increased by 10-15 and 10-25% respectively. The impact toughness and bending angle was slightly lower, but significantly higher than the corresponding values for the base metal. When flat explosive charges are used with weights an order of magnitude greater than the weights of elongated charges such as plastic explosives, the yield point increases by 35-40%, but specimens are significantly deformed.

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USSR

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~~SAFARALIBEKOV, M. G.~~, (Deceased), YAGODZINSKAYA, YE. M., MIRZOYEVA, K. M.,
LEYEZON, M. M. and USTINOVICH, V. N.

"Characteristics of the Clinical Course of Ornithosis"

Azerbaydzhanskiy Meditsinskiy Zhurnal, No 2, 1970, pp 71-74.

Translation: The clinical picture of ornithosis, incorrectly diagnosed as pneumonia or neurasthenia, was described for the first time in Azerbaydzhani (Agdzhabedinskiy rayon). Semi-wild pigeons were the source of infection. Serological and virological studies were conducted in the arbovirus laboratory of the VMIG Institute. Three of the 15 pigeons were serologically positive, and ornithosis virus was isolated from one of them, with characteristic intracellular inclusions in liver and spleen smears. Sera from the blood of a number of adult and child patients was positive with respect to ornithosis antigen. Three associates of the arbovirus laboratory became infected with ornithosis during the work and were subjected to thorough clinical, serological and biochemical study, after which catamnestic observations were conducted for two years.

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USSR

UDC 66.095.26:678.86

KOLESNIKOV, G. S. (DECEASED), SAFARALIYEVA, I. G., RODIONOVA, YE. F.,
and LUK'YANOVA, G. M., Institute of Organo Elemental Compounds, Moscow,
Academy of Sciences USSR

"Kinetics of Polymerization of Vinylphosphonic Esters"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 12, No 5, May 70, pp
1051-1061

Abstract: A kinetic study was made of the block polymerization of a series of vinylphosphonic esters in the presence of azobisisobutyronitrile to ascertain the influence of the value and structure of the alkyl radical on the course of the polymerization process. Vinylphosphonic esters were synthesized and their properties determined, and the specific weights of the monomers and polymers of the vinylphosphonic esters were determined. The polymerization of dimethyl and diisopropyl vinylphosphonate with various initiator concentrations was staged for purposes of ascertaining the role of chain transfer through the monomer in chain termination. It was found that in the early

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KOLESNIKOV, G. S. (DECEASED) et al., Vysokomolekulyarnyye Soyedineniya, Vol 12, No 5, May 70, pp 1051-1061

stage of polymerization chain transfer through the alkyl groups of the monomer is the principal process resulting in the termination of macromolecule growth. In the later polymerization stages there is chain transfer through the alkyl groups of the resultant polymers.

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Construction

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UDC 539.4:624

POLYAKOV, S. V., KONOVODCHENKO, V. I., SAFARGALIYEV, S. M., GUNINA, R. S.

"Study of the Strength of Brick Masonry of Various Design Types"

V sb. Materialy k Vses. soveshch. po proyektir. i str-vu seismostoyk. zdaniy i sooruzh. (Materials from the All-Union Conference on the Design and Construction of Earthquake-Proof Buildings and Structures -- Collection of Works), Moscow, 1971, pp 115-119 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1224)

Translation: The results of tests of brick masonry of calcined clay brick, ordinary and patterned (with grooves on the side spaces) and also of silicate brick, ordinary, hollow and wavy (with a wavy surface) are given. The normal and tangential adhesion to the masonry was studied on samples, columns of dimensions $25 \times 25 \times 30$ (and 22) cm. The samples of calcined brick were tested under static and pulsation (10 Hz) loads. The samples of silicate brick were tested only under static load. A rise in the strength of adhesion to the masonry was noted for patterned and wavy brick. Tests for central compression were conducted on samples of masonry of dimensions $38 \times 64 \times 120$ cm of clay ordinary and patterned brick with reinforcement and without reinforcement. The strength of the reinforcement of the masonry was much higher than the theoretical values calculated by the formulas from the construction norms and regulations. The bearing

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→ POLIUKOV, S. V., et al, Materialy k Vses. soveshch. po proyektir. i str-vu seismostoyk. zdaniy i sooruzh., Moscow, 1971, pp 115-119

capacity of the masonry under the action of a transverse load was determined on masonry samples of dimensions 38 x 64 x 120 cm. The samples were anchored in a force field and were subjected to the simultaneous action of horizontal and vertical compressing forces. Dynamic tests of the samples were conducted on a seismic platform. A. S. Arkhipov.

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USSR

UDC 539.3

VAKHITOV, M. B. and SAFARIYEV, M. S.

"On the Use of a Method for Plates Considered Straight for the Purpose of Calculation"

Kazan', Tr. Kazan. aviats. in-ta (Transactions of the Kazan' Aviation Institute), Vyp 143, 1972, pp 59-67 (from Referativnyy Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4V283)

Translation: Improved equations for the bending of plates with small sag are obtained by the variation method. To do this the finite-difference expressions were used only for writing the first and second derivatives along one of the coordinates. The order of the differential equations obtained is lowered by means of integration. By means of an integrating matrix the equations are written in matrix form. The results of calculating a cantilever plate are presented. The calculated stresses are comparable to the experimental. (6 bibliographic entires, authors' abstract)

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USSR

UDC 632.95

KAMILOVA, R. M., KHIKMATOV, A., RAKHIMOV, A. A., MAKHSUMOV, A. G., SAFAYEV,
A., MIRZABAYEV, E. A.

"Herbicide"

USSR Author's Certificate No 336006, filed 7 Oct 69, published 22 May 72
(from RZh-Khimiya, No 5 (II), 1973, Abstract No 5N653)

Translation: A compound 2,5-diphenylthiophene (I) is proposed to control
weeds in planted fields. In a dosage of 2-3 kg/hectare, I exhibits a
herbicidal activity with respect to Shiritsa, Japanese barnyard millet,
datura and partulak without damaging cotton.

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USSR

UDC 621.382.233

ARIFOV, A.A., MJSAYEV, E. A., SAFAROV, A.

"Current-Voltage Characteristic Of Silicon Tunnel Diodes With Large Current Density"

[Nauchn. tr.] Tashkent. politekhn. in-t ([Scientific Works] Tashkent Polytechnical Institute), 1970, No 65, pp 312-315 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B91)

Translation: The second ascending branch was studied of the current-voltage characteristic of tunnel p-n junctions of n-Si and p-Si. Abnormally large values were observed of the pre-exponential factor I_{02} and the coefficient of β_2 in the index of the exponent of the current-voltage characteristic. As the base material, n-Si doped with As ($7 \cdot 10^{19} \text{ cm}^{-3}$), P ($8.5 \times 10^{19} \text{ cm}^{-3}$), and p-Si, doped with B ($1.5 \times 10^{20} \text{ cm}^{-3}$) were used. The emitter alloys were Al plus B, Sn plus P, Au plus As, Cu plus In plus B. On the basis of the dependence of the parameters of the exponents on the minimum current density, it was concluded that the excess current determines the character of the dependence of the total current on the voltage. 1 ref. 1.B.

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UNCLASSIFIED

PROCESSING DATE--20NOV70

TITLE--THE USE OF INTERFERENCE COLOR FILTERS IN TESTS UPON PHOTOELECTRIC
ABSORPTION METERS -U-

AUTHOR--SAFARGV, G.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZMERITEL'NAYA TEKHNIKA, NO 2, 1970, PP 64-65

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UNCLASSIFIED

PROCESSING DATE--20NGV70

CIRC ACCESSION NO--AP0114257

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN CONNECTION WITH THE DEVELOPMENT OF THE CHEMICAL INDUSTRY AT PRESENT IN THE USSR, PHOTOELECTRIC ABSORPTION METERS (INSTRUMENTS DETERMINING THE CONCENTRATION OF VARIOUS SOLUTIONS) ARE COMING INTO CONSTANTLY MORE EXTENSIVE USE. THE OPTICAL SCHEMES OF PHOTOELECTRIC ABSORPTION METERS CAN VARY GREATLY; THIS REQUIRES A CONSIDERABLE NUMBER OF CONDITIONS FOR THE CERTIFICATION OF STANDARD MEASURES FOR TESTING THESE INSTRUMENTS. THE ARTICLE DEALS WITH THE POSSIBILITY OF CONSOLIDATING THE METHOD OF CERTIFICATION OF STANDARD MEASUREMENTS, I.E., WITH THE DEVELOPMENT OF A CERTIFICATION METHOD BY MEANS OF WHICH THE VALUE OF THE STANDARD MEASURE WILL BE DEFINED ONCE FOR ALL TESTED INSTRUMENTS. THE ADVANTAGES AND DISADVANTAGES OF THE USE OF INTERFERENCE COLOR FILTERS FOR THIS PURPOSE ARE DISCUSSED.

UNCLASSIFIED

USSR

UDC 539.376:534.1

GAKHRAMANOV, K. I., SAFAROV, G. G.

"Stability of a Viscoplastic Section in Plates Under Biaxial Stretching"

V sb. Mekh. deformir. tverdykh tel (Mechanics of the Deformation of Solids -- Collection of Works), Baku, "Elm", 1970, pp 79-85 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V384)

Translation: A plate of viscoplastic material, the stresses and deformation rates of which are related by the expression

$$\sigma_{ij} = \sigma \delta_{ij} + 2 \left[\frac{k}{T} + \eta \right] \dot{\epsilon}_{ij}$$

($\sigma = \sigma_{ij}/3, \dot{\epsilon} = \sqrt{2/3} \sqrt{\dot{\epsilon}_{ij} \dot{\epsilon}_{ij}}$; k is the yield point, η is the viscosity coefficient), is subjected to uniform biaxial stretching according to the law $\sigma_{yy} = m \sigma_{xx}$. A simple load is thus ensured up to the time of perturbation of the basic state.

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GAKHRAMANOV, K. I., SAFAROV, G. G., Mekh. deformir. tverdykh tel., Baku, "Elm", 1970, pp 79-85

The equilibrium equation for the variation in stresses $\delta\sigma_{ij}$ and the relationship between $\delta\sigma_{ij}$ and $\delta\varepsilon_{ij}$ and also the boundary conditions to which the incompressibility condition is connected are described. A solution of the equilibrium equations is sought that satisfies certain symmetry conditions which occur in the case of the formation of a neck in the middle section of the plate. A solution is obtained for the case $m = 1(\sigma_{xx} = \sigma_{yy})$. It is shown that the critical force under which a stability loss arises in the form of a neck is a function of time. V. I. Van'ko.

USSR

KARDYROV, G. K., SAFAROV, M. I.

"Activity of the Enzyme Glutamate Decarboxylase in Some Structures of the Brain and Spinal Cord After the Action of Inhaled Benzene on the Organism"

Izv. Akad. Nauk AzSSR, Ser. biol. n. (Bulletin of Azherbijian SSR Academy of Sciences, Biological Sciences Series), 1973, No 2, pp 88-92) (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, abstract No 18F1736)

Translation: Under extreme conditions of the state of the organism due to the action of a high concentration of inhaled benzene, the activity of glutamate decarboxylase is increased in the brain but insignificantly so in the spinal cord.

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USSR

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UDC: 621.398

SAFAROV, B. T., Leningrad Military Engineering Academy imeni A. F. Mozheyskiy

"A Device for Isolating Pulses of Signal Parameters of a Radio Telemetry System"

USSR Author's Certificate No 232608, filed 20 Sep 67 (from RZh-Avtomatika, tele-mekhanika i vychislitel'naya tekhnika, No 1, Jan 70, Abstract No 1A317 P)

Translation: The proposed device is designed for use in telemetry systems using the digital method of signal parameter transmission. From the over-all telemetry signal consisting of a sequence of code combinations of all channels, the selector isolates the signals of a given channel and forms pulses when the least significant place contains a code. These pulses and the synchronization pulses contained in the over-all telemetry signal are fed to a flip-flop input. This flip-flop operates upon the arrival of a pulse. The next synchropulse resets the flip-flop to the initial state. Negative pulses from the output of the differentiating circuit, which correspond to the trailing edge of the flip-flop output pulse, trigger a multivibrator. The output pulse from the multivibrator as well as that from the selector are fed to the two inputs of an AND circuit, from whose output signals are

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SAFAROV, R. T., et al., USSR Author's Certificate No 232608, filed 20 Sep 67 (from RZh-Avtomatika, telemekhanika i vychislitel'naya tekhnika, No 1, Jan 70, Abstract No 1A317 P)

taken for control of a recording or regulating device. In this circuit, random isolated pulses from the output of the selector cannot reach the recording or control devices. The devices for isolating code signals of the other digital places are similar. The proposed device is simple in design and may be incorporated for operation in analog radio telemetry systems with PTM. Two illustrations. R. S.

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